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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/035,716	10/26/2001	Carlos Guerra	LEC01 P420	4162

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EXAMINER	
SINES, BRIAN J	

ART UNIT	PAPER NUMBER
1743	

DATE MAILED: 12/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/035,716	GUERRA, CARLOS	
	Examiner	Art Unit	
	Brian J. Sines	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 9-19* is/are rejected.

7)☒ Claim(s) *7 and 8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1 – 5 and 13 – 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 – 5 and 13 – 19 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: The connections between each of the claim elements (e.g., each of the species-specific detectors, scrubber, etc.) is unclear. The structure which goes to make up the device must be clearly and positively specified. The structure must be organized and correlated in such a manner as to present a complete operative device. do the detectors and the catalyst have to be in a specific arrangement so as to detect each of the individual gas components? What kind of sample is being "fused"? In what form does the thermal conductivity detector detect nitrogen? Must the scrubber be in a specific arrangement?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 6 and 9 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuznetsov *et al.* (U.S. Pat. No. 4,329,868). Kuznetsov *et al.* anticipate a method for the determination of hydrogen, wherein the method comprises the steps of: heating a specimen in a fusion furnace above 1,500 °C, generally within the range of 1,600 °C to 2,500 °C; purging or sweeping the resulting by-products of the fusion in an analyte stream comprising a carrier gas, such as argon, from the furnace; and then detecting the hydrogen-containing compounds in the analyte stream as a function of temperature to identify specific hydrogen compounds and determine their concentration (see col. 2, line 45 – col. 4, line 47).

Claims 10 – 12 and 15 are rejected under 35 U.S.C. 102(b) as being anticipated by Busch *at al.* (U.S. Pat. No. 5,473,162 A). Busch *at al.* teach a detection apparatus comprising: a fusion furnace; a source of carrier gas; a heated copper oxide catalyst; multiple infrared detectors; and a computer or microprocessor (see col. 6, line 20 – col. 12, line 64; col. 16, lines 13 – 20; figures 1 & 23).

These claims recite various functional limitations, such as the copper oxide catalyst being utilized for converting hydrogen compounds to water. In a claim drawn to an apparatus statutory class of invention, a functional limitation may not be divorced from any specifically recited structure or composition. A functional limitation is an attempt to define an apparatus by what it does, rather than by what it is, *as evidenced by its specific structure* (emphasis added) (see MPEP § 2173.05(g)). Regarding product and apparatus claims, when the structure recited in the reference is substantially identical to that of the claims, claimed properties or functions are presumed to be inherent (see MPEP § 2112.01). The Courts have held that where the claimed and prior art products are identical or substantially identical in structure or composition, or are

produced by identical or substantially identical processes, a *prima facie* case of either anticipation or obviousness has been established. See *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). The Courts have held that apparatus claims must be structurally distinguishable from the prior art in terms of structure, not function. See *In re Danley*, 120 USPQ 528, 531 (CCPA 1959); and *Hewlett-Packard Co. V. Bausch and Lomb, Inc.*, 15 USPQ2d 1525, 1528 (Fed. Cir. 1990) (see MPEP § 2114).

Regarding claims 11 and 12, these claims contain indefinite process or use limitations, which do not further delineate the structure of the claimed apparatus from that of the prior art. Since these claims are drawn to an apparatus statutory class of invention, it is the structural limitations of the apparatus, as recited in the claims, which are considered in determining the patentability of the apparatus itself. These recited process or use limitations are accorded no patentable weight to an apparatus. For example, these claims recite how the apparatus is to be operated, such as heating the copper oxide catalyst to either 650°C or 1,500 °C. These particular recitations do not impart any limitations to define the structure of the apparatus being claimed. Process limitations do not add patentablility to a structure, which is not distinguished from the prior art. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Casey*, 152 USPQ 235 (CCPA 1967); and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). The Courts have held that it is well settled that the recitation of a new intended use, for an old product, does not make a claim to that old product patentable. See *In re Schreiber*, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1431 (Fed. Cir. 1997).

The Courts have held that the manner of operating an apparatus does not differentiate an apparatus claim from the prior art, if the prior art apparatus teaches all of the structural limitations of the claim. See *Ex Parte Masham*, 2 USPQ2d 1647 (BPAI 1987) (see MPEP § 2114).

Allowable Subject Matter

Claims 1 – 5, 13, 14 and 16 – 19 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Claims 7 and 8 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

Kuznetsov *et al.* (U.S. Pat. No. 4,329,868) teach a method for the determination of hydrogen content in inorganic materials. Busch *et al.* (U.S. Pat. No. 5,473,162 A) teach a gas analyzer incorporating the use of infrared emission detectors.

The cited prior art neither teach or fairly suggest the further incorporation within the apparatus a detector for detecting oxygen in the form of carbon monoxide in the sample; an infrared detector for detecting oxygen in the form of carbon dioxide in the sample; a scrubber operative to remove water from the analyte stream; and a thermal conductivity cell for detecting nitrogen in the sample.

The cited prior art neither teach or fairly suggest that the method further include a detecting step comprising employing a heated copper oxide catalyst to convert the hydrogen compounds in the analyte stream to water and providing an infrared detector immediately

downstream of the catalyst to detect hydrogen as a function of the detected water. The cited prior art neither teach or fairly suggest that the compounds further include water, hydrogen and metal hydrides.

The cited prior art neither teach or fairly suggest a method of determining the concentration of hydrogen in the form of different hydrogen–containing compounds, wherein the method comprises the steps of: detecting the hydrogen compounds in an analyte stream as a function of temperature to identify and determine specific hydrogen compounds by employing a heated copper oxide catalyst to convert the hydrogen compounds in the analyte stream to water and providing an infrared detector immediately downstream of the catalyst to detect hydrogen as a function of the detected water; calculating the effect of carbon dioxide on the level of hydrogen measured by the infrared detector; and then compensating the measured hydrogen level based upon the calculating step.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Galloway *et al.* teach a method for determining hydrogen using pyrolytic conversion. Pack *et al.* teach a detection system for nitrogen determination. Uemura *et al.* teach a combustion furnace system for gas analysis. Itoh teaches an analytical method for determining

nitrogen, carbon, hydrogen and sulfur. Kishkovich *et al.* teach a detection system, which incorporates the use of scrubbers for use with reference gases. Benner teaches an oxygen analyzer, which determines oxygen content through converting the oxygen present in the sample into carbon monoxide by contact with heated granular carbon. Muller *et al.* teach a gas sensor for the detection and analysis of multiple gases, which incorporates the use of a plurality of detectors arranged in an array. Benson teaches an analytical method and apparatus for detecting hydrogen-containing compounds using a tritium substrate. Bredeweg teaches a carbon, hydrogen and nitrogen gas analyzer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian J. Sines, Ph.D. whose telephone number is (703) 305-0401. The examiner can normally be reached on Monday - Friday (11:30 AM - 8 PM EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Jill Warden
Supervisory Patent Examiner
Technology Center 1700